

CLAIMS

What is claimed is:

1. A system for storage and mixing of a solution comprising a plurality of ingredients not compatible for long-term storage in a pre-mixed formulation, comprising:
 - a storage tank divided into a plurality of compartments, each compartment adapted to isolate and store an ingredient;
 - a plurality of fluid conduits for withdrawing and conveying ingredients from the compartments;
 - a manifold for mixing of the ingredients to which the fluid conduits are coupled;
 - a sump coupled to an output aperture of the manifold for holding a quantity of the solution and comprising at least one discharge port;
 - a plurality of control valves disposed in the fluid conduits for regulating the flow of ingredients from the compartments to the manifold;
 - a plurality of one way valves disposed in the fluid conduits to prevent a backflow of the ingredients into the compartments;
 - a display device to enable monitoring of one or more system parameters; and
 - a plurality of fill ports disposed in each compartment for loading ingredients.
2. The system of claim 1 wherein the fluid conduits comprise dip tubes that extend down from an upper level of the compartments to a level near the bottom and include an inlet aperture.

3. The system of claim 1 wherein the manifold comprises a coil disposed around the sump.
4. The system of claim 3 wherein the manifold is positioned at a level above the level of the compartments.
5. The system of claim 1 wherein the compartments comprise vents to provide pressure and/or vacuum relief.
6. The system of claim 1 wherein the display device comprises a means for monitoring a liquid level in a compartment.
7. The system of claim 1 wherein the storage capacity of each compartment is proportionate to an amount of an ingredient in the mixed solution.
8. The system of claim 1 further comprising an agitator disposed in a compartment to provide for mixing of an ingredient.
9. The system of claim 1 wherein the discharge port comprises one or more quick-release couplings for attaching conduits to withdraw the solution.

10. A system for storage and mixing of a solution comprising a plurality of ingredients not compatible for long-term storage in a pre-mixed formulation, comprising:

means for storing the plurality of ingredients that prevent commingling during storage;

means for withdrawing ingredients from the means for storing the plurality of ingredients;

means for continuous mixing of the ingredients as they are withdrawn;

means for regulating the flow of the ingredients to the means for continuous mixing;

means for monitoring one or more system parameters;

means for preventing a backflow of the mixed solution to the means for storing the plurality of ingredients; and

means for loading the ingredients into the means for storing.

11. A method for storage and mixing of a solution comprising a plurality of ingredients not compatible for long-term storage in a pre-mixed formulation, comprising:

storing the plurality of ingredients in a storage tank comprising compartments adapted to isolate ingredients so that commingling will not occur during long-term storage;

conveying the ingredients from the compartments to a manifold;

continuously mixing the ingredients in the manifold;

regulating the flow of the ingredients to enable mixing the ingredients in a desired ratio;

monitoring one or more system parameters;

withdrawing the mixed solution from the storage tank;

preventing a backflow of mixed solution into the compartments; and

reloading the ingredients into the storage tank.

12. A system for storage and mixing of a solution comprising a plurality of ingredients not compatible for long-term storage in a pre-mixed formulation, the system comprising:

a storage tank divided into a plurality of compartments, each compartment adapted to isolate an ingredient and sized in proportion to the amount of that ingredient required for the solution, wherein the compartments comprise vents to provide pressure and/or vacuum relief and ports for loading ingredients;

a plurality of fluid conduits for withdrawing and conveying ingredients from the compartments comprising dip tubes that extend down from an upper level of each compartment to draw ingredients up from a level near the bottom of the compartments;

a plurality of control valves for regulating the flow of ingredients from the compartments to maintain a desired proportion of ingredients during mixing;

a plurality of one way valves disposed in the fluid conduits to prevent backflow of the solution into the compartments;

a manifold to which each fluid conduit for withdrawing and conveying ingredients from the compartments is coupled, for continuous mixing of the ingredients as they are withdrawn from the compartments;

a sump coupled to an output aperture of the manifold for holding a quantity of the mixed solution and comprising at least one discharge port for withdrawing the mixed solution, wherein the sump is disposed at a level above the compartments and the manifold is disposed, at least in part, in a coil around the sump; and

a display device to enable monitoring of one or more system parameters.